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10/585,798	10/30/2006	Haijun Wu	HW253556	6035
77399	7590	10/01/2010	EXAMINER	
Leydig, Voit & Mayer, Ltd (for Huawei Technologies Co., Ltd) Two Prudential Plaza Suite 4900 180 North Stetson Avenue Chicago, IL 60601			CLAWSON, STEPHEN J	
			ART UNIT	PAPER NUMBER
			2461	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/585,798	Applicant(s) WU, HAIJUN	
	Examiner STEPHEN J. CLAWSON	Art Unit 2461	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 August 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6,8-11 and 13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6,8-11 and 13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-6, 8-11, and 13 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 2, 4, 5, 6, 8, 11, 12, 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (2003/0099239), and further in view of Vu (2004/0202162) and further in view of Richardson (WO 01/95569) and further in view of Alcatel ("Alcatel Takes Next Major Step with 7300 DSLAM Line" May 19, 2003).

Regarding claim 1, Kim discloses a bandwidth expanded Digital Subscriber Line Access Multiplexer (DSLAM) for multicasting video service, comprising:

a main control board, **(See Kim fig. 4 'MCU' Main controller unit)** subscriber interface boards **(See Kim Fig. 4, 'ATU' ADSL Transceiver Unit; 'STU' SHDSL Terminal Unit; 'VTU' VDSL Terminal Unit; 'LTU' LAN Terminal Unit)** and a data bus which is connected between the main control board and each of the subscriber interface boards; **(See Kim Fig. 4 '180', '181', '182', '183', and '184')**

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wherein the DSLAM further comprises a video bus which is connected between the main control board and each of the subscriber interface boards, and wherein the video bus **(See Kim Fig. 4 '180', '181', '182', '183', and '184') (Kim para. 52 and para. 91; Multiple bus lines are used to transmit data including video.)**

Kim does not explicitly disclose wherein the video bus is a unidirectional bus transmitting the video service stream from the main control board to the subscriber interface board. However, Vu does disclose wherein the video bus is a unidirectional bus transmitting the video service stream from the main control board to the subscriber interface board. **(See Vu para. 23, lines 1-6; unidirectional bus 2) multicast bus (i.e. video bus))** Therefore it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to modify the DSLAM of Kim to include a unidirectional bus of Vu with the motivation being to increase the speed of data transfer for asynchronous data applications where a large portion of data is transmitted in one direction such as broadcast/multicast video.

Kim in view of Vu does not explicitly define a DSLAM. However, Applicant's own admitted prior art, Richardson, does define a DSLAM as '...a device that takes a number of ADSL subscriber lines and concentrates them to a single ATM line...' **(See Richardson pg. 1, lines 28-30)** Therefore it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to modify the apparatus of Kim to include the teaching of where only one ATM line is connected to the DSLAM as per the well-known definition of a DSLAM known to one of ordinary skill in the art.

Kim discloses, in fig. 2, an NIU (network interface unit) which is connected to multiple bus lines (44, 45, and 46) which are controlled by a MCU (main controller unit) that directs the communication across the bus lines to the ATU (ADSL transceiver unit). **(See Kim fig. 2)** Kim in view of Vu in view of Richardson does not explicitly disclose wherein the main control board is configured to detect whether a service from a network interface is the video service stream; if it is, transmitting the video service stream to each subscriber interface board through the video bus in the DSLAM, otherwise transmitting the video service stream through the data bus. However, Alcatel does disclose wherein the main control board is configured to detect whether a service from a network interface is the video service stream; if it is, transmitting the video service stream to each subscriber interface board through the video bus in the DSLAM, otherwise transmitting the video service stream through the data bus. **(See Alcatel para. 4, lines 2-3; separate broadcast video bus and data bus)** Therefore it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to modify the DSLAM of Kim in view of Vu in view of Richardson to include detecting whether a service from a network interface is the video service stream; if it is, transmitting the video service stream to each subscriber interface board through the video bus in the DSLAM, otherwise transmitting the video service stream through the data bus of Alcatel with the motivation being to separate video which requires strict quality of service (i.e. low jitter, delay) from data which is less sensitive to quality of service requirements (i.e. jitter, delay) and thus improve the DSLAM's overall

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performance and thus providing the customer more services of higher quality while at the same time increasing profits by allowing for more profit driven strategies such as triple play services (i.e. telephone, TV, and Internet).

Regarding claim 2, Kim in view of Vu in view of Richardson in view of Alcatel discloses the bandwidth expanded DSLAM according to claim 1, wherein the DSLAM further comprises a multicasting distributor module; **(See Kim fig. 6, 114 and 115 Cell Router (i.e. multicasting distributor module))** and wherein the main control board comprises a data processing module **(See Kim fig. 6, 112, UNI (i.e. data processing module))** and a control module **(See Kim fig. 6, 113 Cell Processor (i.e. control module))** connected with the data processing module; the data processing module outputs the video service stream to an input of the multicasting distributor module, **(See Kim fig. 6)** and an output of the multicasting distributor module is connected to the video bus. **(See Kim fig. 6, 180 and/or 181 (i.e. video bus))**

Regarding claim 4, Kim in view of Vu in view of Richardson in view of Alcatel discloses the bandwidth expanded DSLAM according to Claim 2, wherein the video bus is a shared bus where the output of the multicasting distributor module is connected to the data processing module **(See Kim fig. 8, ATU CPU (i.e. data processing module))** in each subscriber interface board **(See Kim fig. 8, 140 (i.e. subscriber interface board) See also fig. 4 '140)** in parallel; **(See Kim fig. 4, 180, 181, 182, 183, 184 are all in parallel and connected to the subscriber interface boards in parallel)** the

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multicasting distributor module is used for directly driving the inputted video service stream to each subscriber interface board. **(See Kim fig. 6, 114 and 115 Cell Router (i.e. multicasting distributor module))**

Regarding claim 5, Kim in view of Vu in view of Richardson in view of Alcatel discloses the bandwidth expanded DSLAM according to claim 1, wherein the video bus comprises one set of bus or multiple sets of buses **(Fig. 4 '180', '181', '182', '183', and '184')** carrying different video channels of the video service stream. **(Kim para. 52 and para. 91; Multiple bus lines are used to transmit data including video.)**

Regarding claim 6, Kim in view of Vu in view of Richardson in view of Alcatel teaches the bandwidth expanded DSLAM according to claim 1, wherein the video bus is Gigabit Ethernet (GE) bus or Cell bus. **(See Kim para. 87, fig. 4; '180' and '181' is a cell bus.)**

Regarding claim 8, Kim discloses a transmission method for bandwidth expanded DSLAM comprising:

connecting a main control board **(See Kim fig. 4 'MCU' Main controller unit)** and each of subscriber interface boards **(See Kim Fig. 4, 'ATU' ADSL Transceiver Unit; 'STU' SHDSL Terminal Unit; 'VTU' VDSL Terminal Unit; 'LTU' LAN Terminal Unit)** in the DSLAM with a video bus, wherein the video bus is configured to transmit a

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video service stream; **(See Kim Fig. 4 '180', '181', '182', '183', and '184') (Kim para. 52 and para. 91; Multiple bus lines are used to transmit data including video.)**

transparently forwarding to the video bus which is shared, and broadcasting to a data processing module of each subscriber interface board through the video bus; and **(See Kim Fig. 4 '180', '181', '182', '183', and '184') (Kim para. 52 and para. 91; Multiple bus lines are used to transmit data including video.) Kim fig. 4; MCU performs the actions of the multicasting distributor module which forwards video to the subscriber interface boards through the bus. It is inherent that the subscriber boards have data processing modules.)**

Kim does not explicitly disclose transmitting the video service stream to an added multicasting distributor module by a data processing module in the main control board. However, Vu does disclose transmitting the video service stream to an added multicasting distributor module by a data processing module in the main control board. **(See Vu para. 6, lines 15-18; replication circuitry (i.e. multicasting distributor module))** Therefore, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to modify the DSLAM of Kim to include teaching of transmitting the video service stream to an added multicasting distributor module of Vu with the motivation being to allow for the distribution of video and thus permit additional services to be implemented and further to reduce bandwidth utilization by duplicating the video traffic further down in the network tree.

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Kim in view of Vu does not explicitly define a DSLAM. However, Applicant's own admitted prior art, Richardson, does define a DSLAM as '...a device that takes a number of ADSL subscriber lines and concentrates them to a single ATM line...' **(See Richardson pg. 1, lines 28-30)** Therefore it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to modify the apparatus of Kim to include the teaching of where only one ATM line is connected to the DSLAM as per the well-known definition of a DSLAM known to one of ordinary skill in the art.

Kim discloses, in fig. 2, an NIU (network interface unit) which is connected to multiple bus lines (44, 45, and 46) which are controlled by a MCU (main controller unit) that directs the communication across the bus lines to the ATU (ADSL transceiver unit). **(See Kim fig. 2)** Kim in view of Vu in view of Richardson does not explicitly disclose wherein the main control board is configured to detect whether a service from a network interface is the video service stream; if it is, transmitting the video service stream to each subscriber interface board through the video bus in the DSLAM, otherwise transmitting the video service stream through the data bus. However, Alcatel does disclose wherein the main control board is configured to detect whether a service from a network interface is the video service stream; if it is, transmitting the video service stream to each subscriber interface board through the video bus in the DSLAM, otherwise transmitting the video service stream through the data bus. **(See Alcatel para. 4, lines 2-3; separate broadcast video bus and data bus)** Therefore it would have been obvious to one of ordinary skill in the art at the time of the claimed invention

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to modify the DSLAM of Kim in view of Vu in view of Richardson to include detecting whether a service from a network interface is the video service stream; if it is, transmitting the video service stream to each subscriber interface board through the video bus in the DSLAM, otherwise transmitting the video service stream through the data bus of Alcatel with the motivation being to separate video which requires strict quality of service (i.e. low jitter, delay) from data which is less sensitive to quality of service requirements (i.e. jitter, delay) and thus improve the DSLAM's overall performance and thus providing the customer more services of higher quality while at the same time increasing profits by allowing for more profit driven strategies such as triple play services (i.e. telephone, TV, and Internet).

Regarding claim 11, Kim in view of Vu in view of Richardson in view of Alcatel discloses the transmission method according to Claim 8, further comprising: duplicating the received video service stream from the video bus **(See Alcatel para. 4, lines 2-3; Broadcast video bus (i.e. it is broadcast (or duplicated) to all attached subscriber interface boards))** by the data processing module in the subscriber interface board, and outputting to a multicasting subscriber interface. **(See Kim fig. 2, ATU (i.e. subscriber interface board) inherently has a processor (i.e. data processing module) and outputs the video to ATU-R 43a...43h (i.e. multicasting subscriber interface))**

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Regarding claim 12, Kim in view of Vu in view of Richardson in view of Alcatel discloses the transmission method according to Claim 8, further comprising:

detecting whether the received service stream from the video bus is a video service stream by the data processing module in the subscriber interface board;

if it is, duplicating the received service stream and outputting to the multicasting subscriber interface, otherwise discarding it. **(See Alcatel para. 4, lines 2-3; separate broadcast video bus and data bus)**

Regarding claim 13, Kim in view of Vu in view of Richardson in view of Alcatel discloses the transmission method according to Claim 8, further comprising: transmitting all data from the multicast subscriber interface to the main control board through the data bus by the subscriber interface board. **(See Alcatel para. 4, lines 2-3; separate broadcast video bus and data bus; Data is transmitted through the data bus)**

4. Claims 3 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (2003/0099239), and further in view of Vu (2004/0202162) and further in view of Richardson (WO 01/95569) and further in view of Alcatel ("Alcatel Takes Next Major Step with 7300 DSLAM Line" May 19, 2003) and further in view of Applicant's own admissions. (See MPEP 2129).

Regarding claim 3, Kim in view of Vu in view of Richardson in view of Alcatel discloses the bandwidth expanded DSLAM according to claim 2. Kim in view of Vu in

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view of Richardson in view of Alcatel does not disclose wherein the video bus is point-to-point star bus. However, Applicant admits the use of a point-to-point star bus in a DSLAM where the output of the multicasting distributor module is respectively connected to a data processing module in each subscriber interface board; the multicasting distributor module is used for duplicating the inputted video service stream and outputting to each subscriber interface board, respectively. **(Applicant fig. 3)**

Therefore it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to modify the DSLAM of Kim in view of Vu in view of Richardson in view of Alcatel with a point-to-point star bus of Applicant's admitted prior art with the motivation being that this configuration is already well known in the art (and admitted by Applicant) and provides more reliability by preventing the whole device from failing when one of the point-to-point connections fails and further provides increased bandwidth and thus allows for a high level of customer service and experience.

Regarding claim 10, Kim in view of Vu in view of Richardson in view of Alcatel discloses the transmission method according to Claim 8, wherein the step of transmitting to each subscriber interface board through the video bus in the DSLAM comprises:

transmitting the video service stream to the multicasting distributor module by the data processing module in the main control board; **(See Vu para. 6, lines 15-18; replication circuitry (i.e. multicasting distributor module))**

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duplicating the video service stream same copies with the number of connected subscriber interface boards in broadcast mode, **(See Alcatel para. 4, lines 2-3; Broadcast video bus (i.e. it is broadcast (or duplicated) to all attached subscriber interface boards))** or duplicating it according to multicasting allocation in multicast mode by the multicasting distributor module, and outputting the copied video service stream to the data processing module in each subscriber interface board through the video bus **(See Alcatel para. 4, lines 2-3; Broadcast video bus)**

Kim in view of Vu in view of Richardson in view of Alcatel does not disclose wherein the video bus is point-to-point star bus. However, Applicant admits the use of a point-to-point star bus in a DSLAM where the output of the multicasting distributor module is respectively connected to a data processing module in each subscriber interface board; the multicasting distributor module is used for duplicating the inputted video service stream and outputting to each subscriber interface board, respectively. **(Applicant fig. 3)** Therefore it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to modify the DSLAM of Kim in view of Vu in view of Richardson in view of Alcatel with a point-to-point star bus of Applicant's admitted prior art with the motivation being that this configuration is already well known in the art (and admitted by Applicant) and provides more reliability by preventing the whole device from failing when one of the point-to-point connections fails and further provides increased bandwidth and thus allows for a high level of customer service and experience.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEPHEN J. CLAWSON whose telephone number is (571)270-7498. The examiner can normally be reached on M-F 7:30-5:00 pm est.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on 571-272-3155. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/STEPHEN J. CLAWSON/

Examiner, Art Unit 2461

/Huy D Vu/

Supervisory Patent Examiner, Art Unit 2461